

Reply to Non-Final Office Action under 37 CFR §1.111
U.S. Serial No.: 10/789,212
Attorney Docket No.: KMG-1098

IN THE CLAIMS

Please amend the claims as follows:

1. (Original) A gas separation apparatus, comprising:
a cyclone or hydroclone having a gas outlet and a discharge outlet;
a containment vessel in communication with the gas outlet and in communication with the discharge outlet; and
a purge gas stream in communication with the discharge outlet and in communication with the containment vessel.
2. (Original) The apparatus of Claim 1, wherein the gas separation chamber is a cyclone adapted for the separation of gas from a gas/solid mixture.
3. (Currently Amended) The apparatus of Claim 1, wherein the gas separation chamber is a ~~hydrocyclone~~ hydroclone adapted for the separation of gas from a gas/liquid mixture.
4. (Original) The apparatus of Claim 1, wherein the containment vessel is pressurized.
5. (Original) A method for separating gas from a first gas/solid or gas/liquid mixture, comprising the steps of:
introducing the first gas/solid or gas/liquid mixture into a cyclone or hydroclone, respectively;
separating the first mixture into a gas overflow and a discharge underflow;
introducing a purge gas stream to the discharge underflow to create a second mixture comprising purge gas and gas displaced from the discharge underflow; and
merging the second mixture with the gas overflow.
6. (Original) The method of Claim 5, wherein the first mixture is a gas/solid mixture.
7. (Original) The method of Claim 5, wherein the gas is chlorine and the solid is titanium dioxide.
8. (Original) The method of Claim 5, wherein the first mixture is a gas/liquid mixture.
9. (Original) The method of Claim 6, wherein the discharge underflow comprises a majority portion of solids and a minority portion of gas.
10. (Currently Amended) The method of Claim [[7]]8, wherein the discharge underflow

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comprises a majority portion of liquid and a minority portion of gas.

11. (Original) The method of Claim 5, wherein the purge gas is nitrogen or carbon dioxide.